CLAIMS

What is claimed:

1. A method of adding an electron to a chemical substance, wherein said substance in a non-gaseous state is deposited onto a surface, said chemical substance optionally being on the surface along with a second chemical substance, said electron being released from:

(a) said surface, after exposure of said surface to light, said light having an energy which is below the work function of said surface or

(b) said second chemical substance, after exposure of said surface or second chemical substance to light.

2. The method of claim 1 wherein said substance in a non-gaseous state is deposited onto a metal surface, said surface furnishing said electron, and said electron moving from said surface to said substance after exposure of said surface to light, said light having an energy which is below the work function of said surface.

3. The method of claim 2 in which said chemical substance is the first of two different chemical substances deposited on said surface, said surface furnishing said electron to said second chemical substance in an intermediate step, and said electron moving from said second chemical substance to said first chemical substance, said surface giving up said electron after exposure of said surface to light.

4. The method of claim 1 in which the exposure of said second substance to light results in generation of said electron which is furnished to said first substance, wherein said second chemical substance has an ionization potential of less than 8 electron volts.

5. A method for detecting an analyte via laser desorption mass spectrometry, wherein said analyte in a non-gaseous state is deposited onto a surface, said analyte optionally being on the surface along with a second chemical substance, wherein an electron is added to said analyte, said electron being released from:

(a) said surface, after exposure of said surface to light, said light having an energy which is below the work function of said surface or

(b) said second chemical substance, after exposure of said surface or second chemical substance to light.

6. The method of claim 5, wherein said analyte in a non-gaseous state is deposited onto a metal surface, said surface furnishing said electron, and said electron moving from said surface to said substance after exposure of said surface to light, said light having an energy which is below the work function of said surface.

7. The method of claim 6 in which said analyte is the first of two different chemical substances deposited on said surface, said surface furnishing said electron to said second chemical substance in an intermediate step, and said electron moving from said second chemical substance to said

first chemical substance, said surface giving up said electron after exposure of said surface to light.

8. The method of claim 7 in which the exposure of said second substance to light results in generation of said electron which is furnished to said analyte, wherein said second chemical substance has an ionization potential of less than 8 electron volts.

9. The method of claim 5 in which said analyte, prior to capturing an electron, contains an anionic part or group.

10. The method of claim 5 in which said analyte has a mass of greater than 300 atomic mass units.

11. The method of claim 5 in which said analyte comprises a biomolecule, drug or drug candidate.

12. The method of claim 11 wherein said biomolecule is a nucleic acid or a protein.

13. The method of claim 5 in which said analyte contains nitrogen or oxygen.

14. The method of claim 5 in which said light is from a laser having a wavelength of greater than or equal to 300 nm.

15. The method of claim 14 in which said wavelength is 337 or 355 nm.

16. The method of claim 5 wherein the power density of said light is $\geq 10^5$ watts per square centimeter.

17. The method of claim 5 wherein said analyte is a salt analyte, and the entity being desorbed is the anion part of said salt.

18. The method of claim 5 in which said analyte comprises a polyfluoro-containing group.

19. The method of claim 18 in which said polyfluoro-containing group is a polyfluoro-phenyl group.

20. The method of claim 8 in which said second substance has an ionization potential of less than 7.5 electron volts.

21. The method of claim 12 in which said protein or nucleic acid comprises a polyfluoro group.

22. The method of claim 5 in which said surface comprises silver.

23. The method of claim 5 in which said surface comprises indium.

24. The method of claim 5 in which said surface comprises gold.

25. The method of claim 5 in which said analyte is covalently bonded to said surface.

26. The method of claim 9 wherein said analyte comprises a polyfluoro-containing group.

27. The method of claim 5 wherein said surface is not polished.

28. The method of claim 5 wherein said light has an energy which is below the work function of said surface by more than 0.4 eV.

29. The method of claim 5 wherein said light has an energy below 4.0 eV.